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☐ for

Go

Clear

Limits

Preview/Index

History

Clipboard

Details

About Entrez

Display Full

☐ Show

20

☐ Send to

Text Version

All: 1 ☒

Entrez PubMed

Overview

Help | FAQ

Tutorials

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation

Matcher

Batch Citation

Matcher

Clinical Queries

Special Queries

LinkOut

My NCBI

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Order Documents

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NLM Catalog

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☐ 1: Nucleoside-Diphosphate Kinase

Lin

An enzyme that is found in mitochondria and in the soluble cytoplasm of cells. It catalyzes reversible reactions of a nucleoside triphosphate, e.g., ATP, with nucleoside diphosphate, e.g., UDP, to form ADP and UTP. Many nucleoside diphosphates can act as acceptor, while many ribo- and deoxynucleoside triphosphates can act as donor. EC 2.7.4.6.
Year introduced: 1994

Subheadings: This list includes those paired at least once with this heading in MEDLINE and may not reflect current rules for allowable combinations.

☐ analysis ☐ antagonists and inhibitors ☐ biosynthesis ☐ blood
☒ cerebrospinal fluid ☐ chemistry ☐ classification ☐ deficiency ☐ drug effects
☐ genetics ☒ history ☐ immunology ☐ isolation and purification
☐ metabolism ☐ pharmacology ☐ physiology ☐ radiation effects ☐ secretion
☐ ultrastructure

☐ Restrict Search to Major Topic headings only.

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Registry Number: EC 2.7.4.6

Entry Terms:

- Kinase, Nucleoside-Diphosphate
- Nucleoside Diphosphate Kinase
- Deoxynucleoside Diphosphate Kinases
- Diphosphate Kinases, Deoxynucleoside
- Kinases, Deoxynucleoside Diphosphate

- Nucleoside Diphosphokinases
- Diphosphokinases, Nucleoside
- Nucleoside-Diphosphate Kinases
- Kinases, Nucleoside-Diphosphate
- Nucleoside Diphosphate Kinases
- GDP Kinase
- Kinase, GDP

Previous Indexing:

- [Nucleotides \(1966-1976\)](#)
- [Phosphotransferases \(1966-1973\)](#)
- [Phosphotransferases, ATP \(1974-1976\)](#)

[All MeSH Categories](#)

[Chemicals and Drugs Category](#)

[Enzymes and Coenzymes](#)

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[Transferases](#)

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[Phosphotransferases \(Phosphate
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**Nucleoside-Diphosphate
Kinase**

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Genome

Structure

OMIM

PMC

Journals

Book

Search MeSH

for

Go

Clear

Limits

Preview/Index

History

Clipboard

Details

Display Full

Show 20

Send to

About Entrez

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorials

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation

Matcher

Batch Citation

Matcher

Clinical Queries

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1: Myxococcus xanthus

Lin

A species of gliding bacteria found on soil as well as in surface fresh water a coastal seawater.

Year introduced: 1992

Subheadings: This list includes those paired at least once with this heading in MEDLINE and may not reflect current rules for allowable combinations.

☐ chemistry ☐ classification ☐ cytology ☐ drug effects ☐ enzymology
☐ genetics ☐ growth and development ☐ immunology ☐ isolation and purification
☐ metabolism ☐ pathogenicity ☐ physiology ☐ radiation effects
☐ ultrastructure ☐ virology

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Previous Indexing:

- [Bacteria \(1966-1973\)](#)
- [Myxococcales \(1974-1991\)](#)

[All MeSH Categories](#)

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[Bacteria](#)

[Proteobacteria](#)

[Deltaproteobacteria](#)

[Myxococcales](#)

[Myxococcus](#)

Myxococcus xanthus

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OMIM

PMC

Journals

Book

Search PubMed

for 112 AND (#12 OR #11 OR #10 OR #8)

Preview

Go

Clear

Limits

Preview/Index

History

Clipboard

Details

About Entrez

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorials

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation

Matcher

Batch Citation

Matcher

Clinical Queries

Special Queries

LinkOut

My NCBI

Search

Most Recent Queries

Time Result

#13 Search 112 AND (#12 OR #11 OR #10 OR #8)

07:06:25 1

#12 Search #11 NOT #8

07:05:40 2

#11 Search #10 AND xanthus

07:05:18 8

#10 Related Articles for PubMed (Select 11305926)

07:04:51 403

#8 Search #3 AND #7

07:03:53 8

#7 Search "Nucleoside-Diphosphate Kinase"[Mesh]

07:03:03 1366

#3 Search "Myxococcus xanthus"[Mesh]

07:01:44 484

Clear History

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IUBMB Enzyme Nomenclature

EC 2.7.4.6

Accepted name: nucleoside-diphosphate kinase

Reaction: ATP + nucleoside diphosphate = ADP + nucleoside triphosphate

Other names: nucleoside 5'-diphosphate kinase; nucleoside diphosphate (UDP) kinase; nucleoside diphosphokinase; nucleotide phosphate kinase; UDP kinase; uridine diphosphate kinase

Systematic name: ATP:nucleoside-diphosphate phosphotransferase

Comments: Many nucleoside diphosphates can act as acceptors, while many ribo- and deoxyribonucleoside triphosphates can act as donors.

Links to other databases: [BRENDA](#), [EXPASY](#), [GTD](#), [KEGG](#), [ERGO](#), [PDB](#), CAS registry number: 9026-51-1

References:

1. Berg, P. and Joklik, W.K. Enzymatic phosphorylation of nucleoside diphosphates. *J. Biol. Chem.* 210 (1954) 657-672.
2. Gibson, D.M., Ayengar, P. and Sanadi, D.R. Transphosphorylations between nucleoside phosphates. *Biochim. Biophys. Acta* 21 (1956) 86-91.
3. Kirkland, R.J.A. and Turner, J.F. Nucleoside diphosphokinase of pea seeds. *Biochem. J.* 72 (1959) 716-720.
4. Krebs, H.A. and Hems, R. Some reactions of adenosine and inosine phosphates in animal tissues. *Biochim. Biophys. Acta* 12 (1953) 172-180.
5. Nakamura, H. and Sugino, Y. Metabolism of deoxyribonucleotides. 3. Purification and some properties of nucleoside diphosphokinase of calf thymus. *J. Biol. Chem.* 241 (1966) 4917-4922. [PMID: [5925862](#)]
6. Ratliff, R.L., Weaver, R.H., Lardy, H.A. and Kuby, S.A. Nucleoside triphosphate-nucleoside diphosphate transphosphorylase (nucleoside diphosphokinase). I. Isolation of the crystalline enzyme from brewers' yeast. *J. Biol. Chem.* 239 (1964) 301-309.

[EC 2.7.4.6 created 1961]

[Return to EC 2.7.4 home page](#)

[Return to EC 2.7 home page](#)

[Return to EC 2 home page](#)

[Return to Enzymes home page](#)

[Return to IUBMB Biochemical Nomenclature home page](#)

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2	"6746849".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:08
S2	2	"6545127".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/20 13:06
S3	10107	brune.in. or corrie.in. or webb.in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/28 15:17
S9	379	(ndpk or (nucleoside adj diphosphate adj kinase))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/28 15:34
S10	12	S9 and S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/28 15:34
S11	2	S9 and idcc	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/28 15:35
S12	11	S4 and fluorescen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/09/28 15:35
S13	10714	brune.in. OR corrie.in. OR webb.in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:10
S14	12	S13 AND (NDPK OR "nucleoside diphosphate kinase" OR xanthus)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:11
S15	478	NDPK OR "nucleoside diphosphate kinase" OR "nucleoside 5'-diphosphate kinase" OR "nucleoside diphosphate (UDP) kinase" OR "nucleoside diphosphokinase" OR "nucleotide phosphate kinase" OR "UDP kinase" OR "uridine diphosphate kinase" OR "Nucleoside-Diphosphate Kinase" OR "Deoxynucleoside Diphosphate Kinase" OR "GDP Kinase"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:15

EAST Search History

S16	14	S15 and xanthus	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:15
S17	8	S16 and ("112" OR Asp112 OR D112)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2007/07/02 07:16

Search History for 10/779,718

(FILE 'HOME' ENTERED AT 08:39:59 ON 02 JUL 2007)

FILE 'REGISTRY' ENTERED AT 08:40:27 ON 02 JUL 2007

L1 1 S 9026-51-1/RN

FILE 'REGISTRY' ENTERED AT 08:41:04 ON 02 JUL 2007

FILE 'CAPLUS' ENTERED AT 08:41:08 ON 02 JUL 2007

L2 E BRUNE M H/AU 25
2 S (E1 OR E8 OR E9 OR E10) AND (L1 OR NDPK OR "NUCLEOSIDE DIPHOS
E CORRIE J E/AU 25
L3 2 S (E4 OR E8 OR E10 OR E11) AND (L1 OR NDPK OR "NUCLEOSIDE DIPHO
E WEBB M R/AU 25
L4 2 S (E3 OR E35 OR E36) AND (L1 OR NDPK OR "NUCLEOSIDE DIPHOSPHATE
L5 2 S L2 OR L3 OR L4

FILE 'MEDLINE, AGRICOLA, CAPLUS, BIOSIS, EMBASE, WPIDS, SCISEARCH'
ENTERED AT 08:44:08 ON 02 JUL 2007

L6 6832 S L1 OR NDPK OR "NUCLEOSIDE DIPHOSPHATE KINASE" OR "NUCLEOSIDE
L7 607 S "NUCLEOSIDE DIPHOSPHOKINASE" OR "NUCLEOTIDE PHOSPHATE KINASE
L8 6145 S "NUCLEOSIDE-DIPHOSPHATE KINASE" OR "DEOXYNUCLEOSIDE DIPHOSPHA
L9 7112 S L6 OR L7 OR L8
L10 149 S L9 AND XANTHUS
L11 1 S L10 AND (ASP112? OR D112? OR ASP-112 OR ASPARTATE-112)
L12 0 S L11 NOT L5
L13 45 S L10 AND (MUTANT OR VARIANT OR MUTAGENESIS OR MUTATION OR SUBS
L14 31 DUP REM L13 (14 DUPLICATES REMOVED)
L15 0 S L14 AND "112"

=>

*For L6, L7, L8 - used all synonyms listed in MeSH
and IUBMB (see attached printouts)*